

## Completed Pollution Prevention Project Case Study

United States Department of Energy  
Office of Environmental Management  
Fact Sheet

### Lead Free Protective Aprons

Los Alamos National Laboratory

#### Original Problem

Employees wear lead-containing aprons in certain radiological control areas to minimize their exposure to radiation. The problem with these aprons is that lead is a regulated metal and must ultimately be handled as hazardous waste. If the apron gets contaminated with any radioactive material, the lead is handled more expensively as mixed low-level waste. Although the lead is encased in vinyl, the user could be exposed to lead if the exterior coating rips. These aprons are also quite heavy and not very comfortable to wear for long periods of time.

#### The Project Solution

The lead-containing protective aprons were replaced with EarthSafe aprons that do not contain lead. The EarthSafe aprons have similar effectiveness and price, but these aprons do not contain any hazardous components.

#### Value of Improvement

The EarthSafe aprons are expected to last just as long as the lead-containing aprons. Users prefer the EarthSafe aprons because they are lighter and more comfortable to wear. Non-hazardous lead-free aprons are also preferable from the waste generation perspective. When the EarthSafe aprons are no longer usable, they become sanitary or low-level waste instead of hazardous or mixed low-level waste.

#### Lifecycle Waste Reduction

Lifecycle Waste Reduction	Varies
Commencement Date	2002
Project Useful Life (Years)	Varies



#### DOE Monetary Benefits

Total Project Cost	NA
Lifecycle Savings	Varies
Return on Investment	NA

#### Benefits At-A-Glance

- The EarthSafe aprons are cheaper to dispose of because they contain no hazardous materials.
- The EarthSafe aprons last just as long and shield against radiation just as well as the lead-containing protective aprons.
- The EarthSafe aprons are lighter and more comfortable to wear.

## **Lead Free Protective Aprons Los Alamos National Laboratory**

	<b>Summary Data</b>
Priority Area:	Waste Minimization Projects
Project Type:	Source Reduction
Total Project Cost:	NA
Lifecycle Savings:	Varies, but EarthSafe aprons do not need to be handled as hazardous or mixed low-level waste, and these waste types are more expensive to handle than sanitary or low-level waste.
Implementing Group:	Pit Disposition Science and Technology Group
Benefiting Group:	Pit Disposition Science and Technology Group
Useful Life Years:	Depends on actual life of each apron.
Return on Investment:	NA
Lifecycle Waste Reduction:	Varies with the life of each apron.
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